
What role can minimum wages play in overcoming the low-wage model in central and eastern Europe?

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europa trade union institute

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Abstract

Many countries in central and eastern Europe have pursued active minimum wage policies and there is considerable evidence about their effects. It shows that minimum wages are an effective tool for reducing inequality by raising the lowest incomes. They can be used to reduce inequality at very low to no costs to workers (in employment) and companies (in profits). Moreover, minimum wages can have some role in increasing aggregate productivity and promoting economic upgrading. Indeed, they should be used as part of a developmental strategy to overcome the low-wage model that is prevalent in the region. However, to be truly effective in raising aggregate wage levels, it would need to be accompanied by a stronger role for collective bargaining in these countries.

Introduction

A minimum wage is a policy tool that is available and ready to use in all central and eastern European countries.¹ Many countries in the region have in fact pursued active minimum wage policies and there is considerable evidence about their effects. These countries tend to lack other labour market institutions that could play an important role in economic governance, such as centralised collective bargaining. Minimum wages are ready to use with no need for institution-building. But what role can they play? Can they be used to address low-wage specialisation and help central and eastern European countries to move to a higher economic level? Are those who argue that minimum wages hinder economic performance right? Or are they an effective social policy tool without much economic relevance?

Current debate on the economics of minimum wages recognises an important role for this instrument in improving income distribution, making low wage earners better off through redistribution from other parts of society. It is also commonly acknowledged that the many possible effects of minimum wages, and their dependence on the specific policy mix of individual countries, make their impact an empirical matter (e.g. IMF 2016). International empirical literature tends to find that minimum wages, at least at the levels common in existing minimum wage policies, have at most a small negative effect on employment.

In theory, minimum wages can have positive economic effects by inducing companies to step up productivity to compensate for higher wage bills. Higher productivity is then translated into higher output and improved income distribution. Minimum wages are considered to have a positive role also when they correct existing labour-market distortions. In the so-called monopsony model, minimum wages are expected to directly increase employment (Card and Krueger 1995; Manning 2003). If there are only a few firms, they have monopsony power to hold wages artificially low by hiring too few workers. Minimum wages thus can raise wages to an efficiency level, leading to expansion of output and employment. Moreover, there are arguments that link minimum wage increases with productivity improvements on the company level, as well as with a general upgrading of economic structures.

As will be discussed in this paper, experience with minimum wages in central and eastern Europe confirms their relatively harmless effects on employment.

1. Including south-eastern Europe and the Baltics.

At the same time, if high enough, they can improve the incomes of the lowest earnings groups. They can thus be used as an effective mechanism of redistribution, improving general income distribution at no or very low cost. Higher equity is not just a goal that policymakers may decide to pursue for value reasons, but also a public good because it can improve, among other things, the efficiency of human capital formation. Redistribution through minimum wages can thus be used to counter increasing inequality, which is also detrimental to economic growth (see Dabla-Norris *et al.* 2015).

What is more, minimum wages can also have some, albeit limited, developmental role, helping to raise aggregate productivity and induce economic upgrading. While the evidence on the direct effects of minimum wage increases on productivity in companies in central and eastern Europe is inconclusive, there is some evidence suggesting that minimum wages can be used to raise aggregate productivity by pricing the low-productivity export sectors out of the market, hence raising aggregate productivity and encouraging economic upgrading. More specifically, the evidence shows that companies typically react to minimum wage increases by passing higher wage bills on to consumers. While this seems to have little impact on employment and profits in general, minimum wage increases adversely affect profitability and employment in some tradeable sectors, labour-intensive manufacturing and services in particular. Importantly, these are not sectors in which minimum wages are prevalent. Thus there is only a limited developmental role for this instrument.

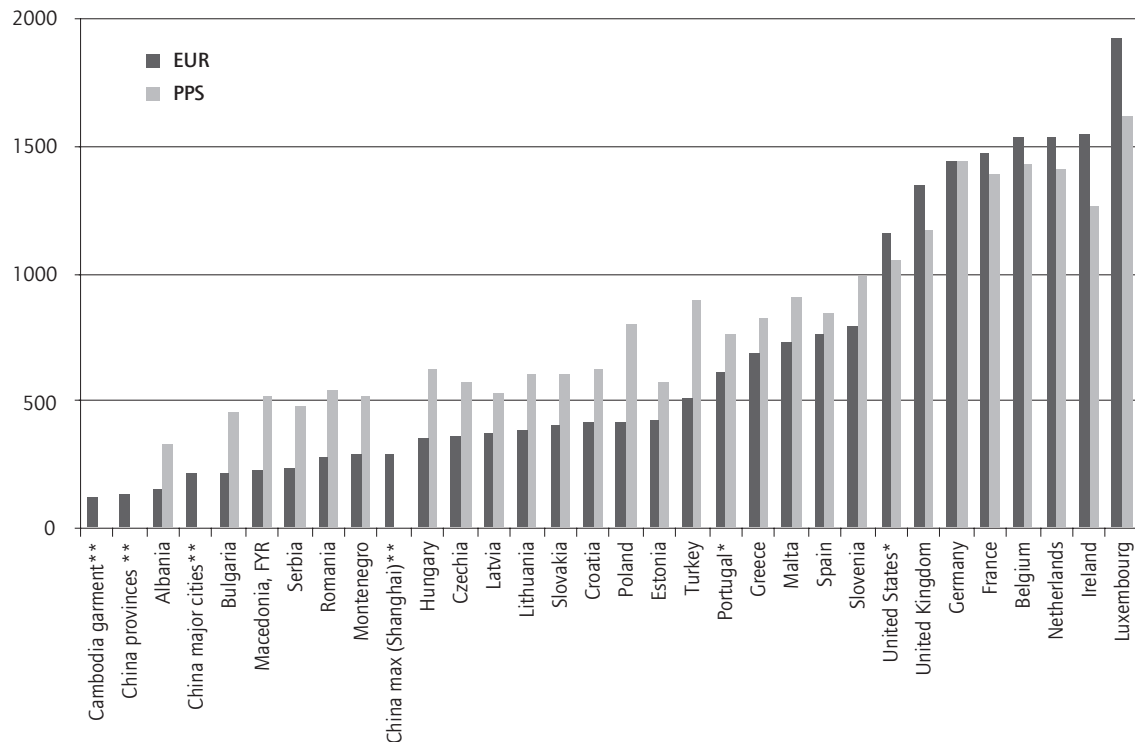
Finally, there is some – not entirely conclusive – evidence that minimum wages increase profits. This would be consistent with the monopsony model, but the relative dominance of companies relative to workers can be attributed also to other political factors. In any case, the finding would imply that minimum wages could also be used to increase the low share of labour income (wage share) that is characteristic of the region.

The next section discusses the role minimum wages have played in central and eastern Europe, identifying differences between individual countries. The second section provides an overview of minimum wage effects on income distribution in the region. Employment effects are addressed in the third section. The fourth section covers effects on productivity and other means through which minimum wages can be used to improve efficiency. The conclusion relates findings to the differences between countries.

Minimum wages in central and eastern Europe

Minimum wages have played an important role in the policy mix of central and eastern European countries. Nominal minimum wages there are much lower than in western Europe, but this reflects the general wage gap between east and west. Relative to average wages, minimum wages have been brought into line with levels in the west in many central and eastern European countries. However, there is a considerable variation in minimum wage levels, with Slovenia pursuing a high minimum wage policy, while Czechia, Estonia and Slovakia keep the minimum wage at a lower level. In some countries – for example, Latvia and Romania – the minimum wage affects relatively more workers than in western Europe, but overall its incidence tends to be comparable to levels characterised of the west.

Figure 1 Monthly minimum wages, euros, 2016 S2

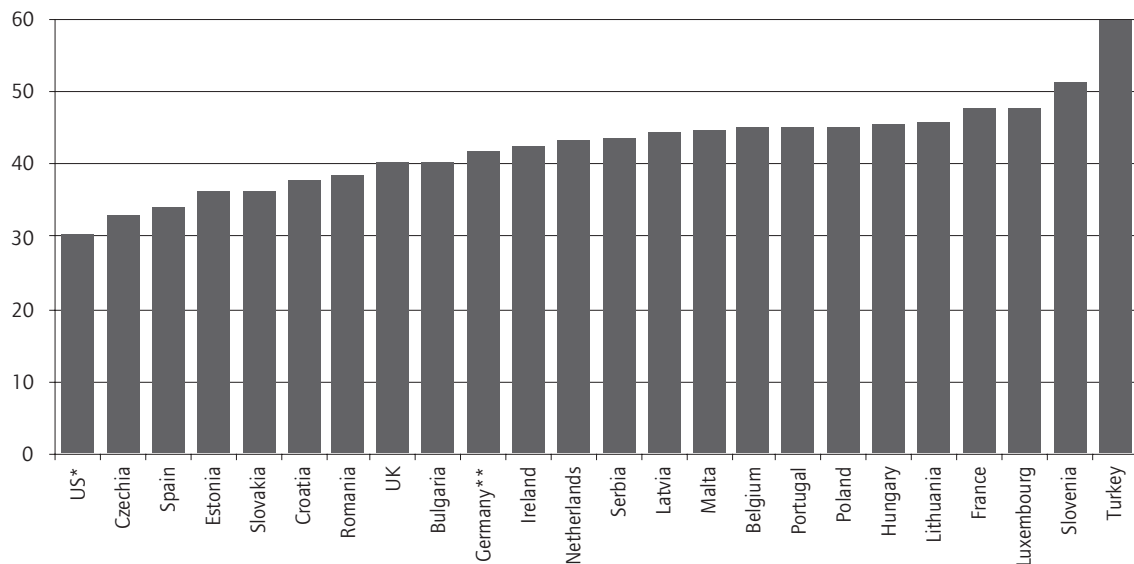


Sources: Eurostat [earn_mw_cur]; for China: China Labour Bulletin.² Notes: * 2016 S1 ** 2016.

2. <http://www.clb.org.hk/content/wages-and-employment>

Figure 1 compares nominal minimum wages in euros in European countries, as well as with selected world comparators. For European countries, it also includes minimum wage levels in purchasing power standards (PPS). In absolute terms, minimum wages in central and eastern Europe reach only about a third of western European levels. This is hardly surprising given the low wage levels overall. The highest minimum wage in the region can be found in Slovenia. Minimum wage levels in the Visegrád countries and the Baltic States are similar, ranging from 350 euros in Hungary to 430 euros in Estonia. Nominal minimum wages are lowest in south-eastern Europe, with levels comparable to those in Chinese cities. These differences become somewhat smaller – but still substantial – if price levels are controlled for. Expressed in PPS, the Polish minimum wage appears generous relative to the levels common in the region.

Figure 2 Monthly minimum wage as a percentage of average monthly earnings, 2014



Note: * 2013, ** 2015.
Source: Eurostat [earn_mw_avgr2]

While the minimum wage gap between eastern and western Europe is large in absolute terms, minimum wages in many central and eastern European countries have reached over 40 per cent of average wages, which compares with the situation in western Europe (see Figure 2 with comparative data for 2014). Measured in relative terms, Slovenia has the highest minimum wage in the EU (50.8 per cent in 2016). Nevertheless, minimum wages remain below the EU average in Czechia (where it rose to 34.6 per cent in 2015), Estonia, Slovakia (rising to 37.9 per cent in 2015), Croatia (38.6 per cent in 2015), and Romania.

These levels were reached only recently, when a number of central and eastern European countries turned to active minimum wage policies, often resorting

to hikes that were exceptionally high relative to western Europe. In 2011–2015, minimum wages rose sharply relative to both average wages and productivity in Bulgaria, Lithuania, Hungary, Poland, Slovenia and Romania. In the early 2000s to 2007/2008, wages in the region were rising rapidly in general, including for low-wage earners. Romania and Hungary, however, pursued radical minimum wage policies in this period (see Table 1). In the 2008/2009 crisis, minimum wages relative to average wages typically rose due to general wage stagnation and cuts, but their real value often fell.

An indicator of the proportion of employees earning the minimum wage, or slightly above, is presented in Figure 3. More recent data from national sources confirm a wide variation in minimum wage incidence in the region, but can sometimes be contradictory and do not represent a precise match with the 2010 survey presented in Figure 3.³ They ranged from 1.6 per cent of total employment in Czechia in 2013 (Trexima and VŠE 2013) to 15 per cent in Latvia and 22 per cent in Romania⁴ in 2014 (IMF, 2016). Other countries were in between: 6 per cent of total employment in Estonia in 2014 (IMF, 2016), 6 per cent in Slovenia in 2015,⁵ 7 per cent in Slovakia in 2014 (less than 105 per cent of MW, IFP, 2016) and 9 per cent in Lithuania and Poland (IMF 2016). The incidence of minimum wages thus compares with rates of less than 5 per cent in the United Kingdom or the United States and around 10 per cent for France and Germany (IMF 2016). In contrast to a number of western European countries, the design of minimum wage schemes in central and eastern Europe is relatively simple, without multiple regional or sectoral minima, which leads to ‘clean cut’ wage distributions (Rycx and Kampelmann 2012).

The incidence of minimum wages depends on the type of economic activity (sector), workers’ educational level and enterprise size. In Czechia, for instance, minimum wage workers were most prevalent in administrative services (7.4 per cent of workers in the sector), accommodation and food services (4.5 per cent) and professional, scientific and technical activities (3.9 per cent); in companies with fewer than 10 employees (4.7 per cent) and among workers with elementary or no education (4.1 per cent) (Trexima and VŠE, 2013). In Slovakia, minimum wage workers were most prevalent among young employees (18–24 years, 12 per cent) and in accommodation and restaurants (26 per cent) (IFP, 2016). In Lithuania, they were represented mostly in accommodation and food services (23.8 per cent), other service activities (20.5 per cent) and real estate activities (13.2 per cent) (IMF 2016). These patterns are characteristic of the region as a whole.

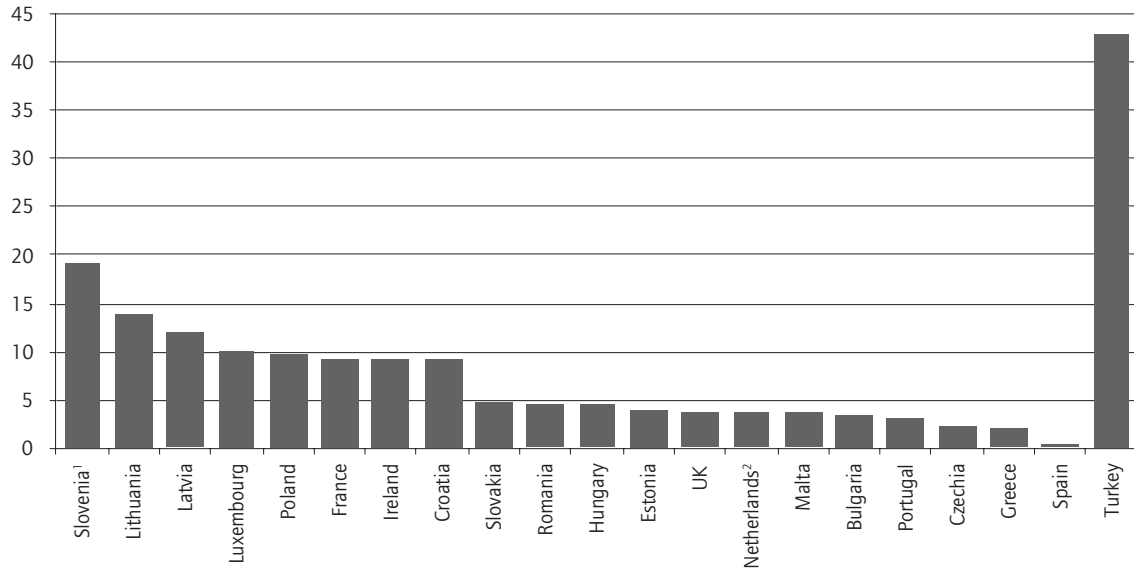
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3. One of the reasons being that the incidence is influenced by frequent changes in minimum wage levels. Data are also likely to be biased by the prevalence of undeclared employment and envelope wages, which vary across countries and sectors.
 4. Other Romanian sources from the same period suggest a lower minimum wage incidence (11%) (BNR 2015).
 5. <http://www.eurofound.europa.eu/observatories/eurwork/articles/working-conditions/slovenia-around-6-of-workers-are-on-the-minimum-wage>

Table 1 Real development of minimum wages per hour

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Albania	9.7	5.2	16.2	6.6	-2.1	14.7	16.3	-2.9	18.1	3.6	2.0	1.8	3.0	2.8	-1.6	-1.9
Bulgaria	11.1	18.1	4.4	7.0	19.1	1.7	5.3	13.1	-3.1	-2.8	-2.4	9.2	11.9	8.8	3.9	17.3
Croatia	-4.6	2.0	1.7	3.1	4.6	0.9	2.7	3.4	6.4	0.1	-1.0	-2.2	-3.4	4.9	0.6	3.3
Czechia	30.6	8.3	7.0	7.2	4.5	3.3	5.1	-3.0	-6.3	-1.0	-1.5	-1.9	-3.3	3.8	8.3	6.4
Estonia	11.1	9.0	13.6	13.3	5.5	7.7	15.7	19.7	-10.4	0.1	-3.0	-0.9	1.6	9.3	10.0	9.0
Hungary	46.7	16.1	-5.3	1.2	0.8	6.2	0.8	-2.7	-2.5	-1.3	1.3	15.3	-0.3	1.8	3.6	5.9
Latvia	-2.6	18.1	15.5	10.1	-6.2	6.2	26.8	24.8	-2.8	-3.5	10.9	-4.4	-1.1	12.9	11.7	1.2
Lithuania	-1.0	-1.4	-0.3	6.6	10.5	10.1	21.0	10.8	-10.9	-4.4	-1.3	-4.1	21.7	-1.1	3.2	17.5
Macedonia													-3.3	-2.8	9.6	14.5
Moldova			42.7	24.2	16.9	13.2	51.1	-12.1	-12.9	0.1	14.7	-7.6	13.7	2.9	12.9	6.7
Poland	3.5	-5.3	3.4	2.3	-0.3	3.7	2.8	17.9	9.2	-0.6	2.6	4.0	3.1	4.0	4.1	6.5
Romania	76.5	5.5	56.1	-3.3	-1.2	-2.5	11.6	23.4	12.2	-5.6	5.6	-1.3	-3.3	17.4	13.6	8.2
Serbia													6.5	-9.1	2.3	-1.6
Slovakia	-1.9	4.4	17.2	0.8	-0.7	3.4	5.6	3.9	5.2	2.6	1.9	-0.6	-0.4	2.7	8.0	7.2
Slovenia	1.1	8.7	2.0	2.0	1.8	1.9	-0.5	-0.4	3.8	0.4	23.4	0.3	0.1	-1.1	0.0	0.5

Note: Development of the nominal Minimum Wages deflated by the national consumer prices; development from 1 January of the current year to 1 January of the following year in percentage terms.
Source: WSI Minimum Wage Database.

Figure 3 Proportion of employees earning less than 105 per cent of the monthly minimum wage, October 2010



Note: Full time employees, 21 years or older, working in enterprises with 10 employees or more, NACE Rev. 2 Sections B to S excluding Section O; Belgium: not available.

¹ In October 2010 each business entity could pay any amount between EUR 654.69 and EUR 734.15, the proportion is only an estimate.

² The national minimum wage applies to employees aged 23 or older, but the scope of this analysis covers employees aged 21 or older for compatibility with other countries

Source: Eurostat, Structure of Earnings Survey 2010 and minimum wages; special calculation available here: http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum_wage_statistics (Figure 4)

Finally, there is a wide variation in the level of compliance with official minimum wages. However, it does not seem to be linked to differences in minimum wage levels between countries (Goraus and Lewandowski 2016; cf. IMF 2016: 18–20). Accordingly, on average in 2003–2012 the estimated incidence of violations ranged from 1.0 per cent in Bulgaria, to 1.3 per cent in Czechia, around 3 per cent in Romania and Slovenia, 4.7 per cent in Poland and Hungary, 5.6 per cent in Latvia and 6.9 per cent in Lithuania. The average pay shortfall ranged from 13.7 per cent of the country-year specific minimum wage in Estonia to 41.7 per cent in Slovenia (Goraus and Lewandowski 2016).

Income distribution effects

Minimum wages can improve income distribution through four types of effects. First, it can reduce poverty by improving the incomes of minimum-wage and low-wage earners. However, the role of minimum wages in poverty alleviation is likely to be limited as the very poor are often not found in employment and in-work poverty is typically linked with too few working hours rather than low pay (OECD, 2015). Moreover, minimum wage levels are often too low to push household incomes above the poverty level, particularly when they include dependent persons (Marx *et al.* 2012).

Second, and less controversially, if sufficiently high, minimum wages are likely to improve income distribution and reduce inequality, primarily by pushing up lower wages (DiNardo *et al.* 1996; Autor *et al.* 2016).⁶ Moreover, third, minimum wage increases can improve workers' incomes in general if a higher wage floor provides incentives for employers to increase the wages of better paid workers to retain sufficient pay differentiation. Finally, minimum wages can influence the distribution of productivity between labour and capital by pushing up the wage share in income. The latter has been declining across the world, with negative effects on inequality and economic growth (ILO and OECD 2015).

However, these effects are not automatic as they depend on a wider policy mix in a country and other contextual factors. They may be cancelled out by low compliance. However, as is apparent from the discussion below, minimum wages have significant effects on low wages also in countries with higher non-compliance. Minimum wage increases may be also offset by lowering non-wage benefits or the undeclared part of remuneration (envelope wages). The IMF has indeed suggested that minimum wage increases in central and eastern Europe have been associated with lower labour force participation, more cash payments and fewer hours worked per employee (IMF 2016: 9–10). Finally, income gains from additional earnings may be offset by lower social security payments or subject to taxes or social security contributions. It is thus important to consider experience with minimum wages from individual central and eastern European countries.

6. Where significant effects are found, the typical pass-through of a 1% change in the minimum wage is in the range of 0.8–0.9 % on wages for workers at or just above the minimum wage and 0.3–0.4% on those above the minimum wage (e.g. Neumark *et al.* 2005; Autor *et al.* 2016).

The empirical evidence from central and eastern Europe shows minimum wages to be ineffective in reducing poverty levels, which have been largely unaffected by minimum wage increases (IMF 2016: 18–19). However, the evidence shows strong effects on income distribution in many central and eastern European countries, making minimum wages an important tool for improving equality primarily by pushing up the incomes of low-wage earners. Recent sharp increases in minimum wages have been associated with improvements in equality in Poland, Romania and Slovakia. In Latvia, for example, the ratio between incomes in the highest and the lowest deciles fell from 14.6 times in 2006 to 12.1 times in 2014. An equalising effect was recorded also in Hungary, Poland, Croatia and Lithuania, albeit somewhat less pronounced (IMF 2016: 18–19).

The equalising effect of minimum wages can be observed in detail through a study of the gigantic minimum wage increase in Hungary in 2000–2001, when it was raised from 35 per cent to 55 per cent of the median wage. In effect, many workers who earned below the 2002 minimum wage were swept up to the new minimum wage level.⁷ An excess mass of workers was relocated also to income categories above the new minimum wage. However, the minimum wage had a lasting effect on only the wages of the lowest 10th percentile of workers.⁸ Improving the wages of the lowest-income workers was thus the main equalising effect of the minimum wage hike. The drop in inequality was long-lasting; the 90/10 wage ratio was 5.2 in 2000 and 4.2 in 2013.⁹ The equalising effect was reinforced by the fact that the costs of the increase were borne by better off consumers, who faced higher prices (Harasztosi and Lindner 2015).

Empirical evidence on the minimum wage effect on general wages in other central and eastern European countries apparently confirms the Hungarian experience: the main effect seems to be concentrated in those affected directly or earning just above the minimum wage. Moreover, minimum wages have to be relatively high to matter. Evidence from firm-level surveys within the Wage Dynamics Network (WDN) of the European Central Bank¹⁰ thus found effects of minimum wage increases in Latvia (January 2014), Lithuania (January 2013), Romania (January 2013 – January 2015) and Slovenia (February 2010). Accordingly, about a fifth of firms in Latvia and Slovenia increased the wages of employees earning above the minimum wage level when minimum wages were increased (Schnattinger *et al.* 2015; Fadejeva and Krasnopjorovs 2015; BNR 2015; LB 1995). In Romania, minimum wage increases directly contributed about 0.5 per cent to the month-to-month growth of average gross wages in the private sector. Knock-on effects were particularly prevalent in small enterprises or sectors with a higher share of minimum wage workers.

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7. The increase in workers' earnings was mitigated by about 20 per cent through cuts in non-financial remuneration (Harasztosi and Lindner 2015).
 8. Data from the Hungarian Structure of Earnings Survey, provided by Attila Lindner, private correspondence, 27 August 2016.
 9. OECD.Stat database, <https://stats.oecd.org/Index.aspx?DataSetCode=IDD>
 10. https://www.ecb.europa.eu/pub/economic-research/research-networks/html/researcher_wdn.en.html

These happen to be countries in which minimum wages are high and cover a relatively high number of workers. Country reports for countries in which minimum wages are lower, such as Estonia and Slovakia, do not identify major effects of minimum wage rises (Malk 2015; Tóth and Vaľková 2015).

The IMF, using both aggregate and firm-level data (IMF 2016: 13–14), estimate that a 1 per cent rise in minimum wages will lead to a long-lasting positive effect on general wages in the range of 0.1–0.15 per cent. These effects differ across countries: in Lithuania and Romania – countries with higher minimum wages – they ranged between 0.3 and 0.45 per cent. The IMF’s analyses also confirmed the sectoral variation: sectors with a high minimum wage incidence exhibited a much higher pass through (for example, 60 per cent in construction in contrast with 10 per cent in finance in Lithuania).

Finally, there is some evidence suggesting that minimum wage increases have influenced the distribution of income between capital and labour. According to the IMF’s (2016) analysis of firm-level data from 2009–2013, minimum wage hikes generally cut into profits, especially in the tradable sector: a 10 per cent increase in minimum wages reduces profit margins by 3 per cent and by 8 per cent for firms in the tradable sector.¹¹

11. However, the analysis of the massive 2001 minimum wage hike in Hungary did not find any effect on profits (Harasztosi and Lindner 2015).

Employment effects

The potential negative impact of minimum wages on employment has a key role in the debate on minimum wage policy. The large international empirical literature on minimum wages typically finds close to zero effects of minimum wages on employment, with some studies identifying positive effects (Doucouliagos and Stanley 2009; Schmitt 2013).¹² It is possible that the lack of negative employment effects in the empirical literature is linked to the fact that minimum wage levels in most studied countries are relatively low relative to average wages (Schmitt 2013).¹³ However, a 1998 cross-country study by the OECD found no significant difference between countries with high and low minimum-to-average wage ratios (OECD 1998).

Evidence from central and eastern European countries tends to confirm very limited effects on employment. Some very small effects were identified for those directly affected by minimum wage increases. In Lithuania, minimum wage hikes appear to have had a positive impact on employment, possibly through making employment more attractive relative to inactivity or emigration (Hazans 2007). The study of the gigantic hike in the Hungarian minimum wage after 2001 demonstrates a close to zero effect on employment (Harasztosi and Lindner 2015). In Estonia, a 10 per cent minimum wage increase reduced employment by only 0.4–0.66 per cent for those directly affected, while having no measurable influence for the rest of the workforce (Hinnosaar and Rõõm 2003). In Poland, the probability of being employed for those newly bound by minimum wages declined by 11.5 percentage points (Baranowska-Rataj and Magda 2015). In Czechia and Slovakia, using matched employee–employer data sets, Eriksson and Pytlikova (2004) did not find substantial job losses from minimum wage hikes in 1999–2012. An analysis of aggregate data for 2000–2014 by the Czech Office of Government found no aggregate effects of minimum wage changes on employment (Pícl *et al.* 2014; Pícl and Richter 2014). An analysis by the Slovak government, based on micro-level data from 2005–2015, found that a 5 per cent increase in minimum wages increases the risk of unemployment for those affected by 1 percentage point

12. The results include also significant disemployment effects, but the bulk of the studies do not find any significant effects (for somewhat contrasting reviews of the literature, see Betcherman 2012; Neumark *et al.* 2014). Employers are often found to react to minimum wage hikes by increasing productivity and passing on higher costs to consumers (e.g. D’Arcy and Whittaker 2016). At the same time, the studies typically find negative or larger impacts on certain vulnerable groups, such as the young and low skilled, but the evidence remains mixed also for these groups (e.g. Allegretto *et al.* 2011).

13. Indeed, the bulk of the studies draw on experience from the US and the UK. In contrast, a study of minimum wages in France found significant negative effects (Abowd *et al.* 1997).

relative to those earning above the minimum wage (IFP 2016). Finally, a company survey from Slovakia also shows a strong tendency among companies to adjust through other means than cutting hours worked (Tóth and Vaľková 2015).

The IMF's analysis of the Orbis database of companies in 2009–2013 shows that a 10 per cent increase in minimum wages is associated with an employment reduction of 0.4 per cent (IMF 2016: 17). It finds no evidence of an impact on the capital/labour ratio and hence support for the view that minimum wage pressures prompt firms to substitute capital for labour. The IMF's analysis of the aggregate level also finds some effect on youth unemployment, but only under specific model specifications (accordingly, a 10 per cent increase lowers youth employment by 1.5 per cent). The IMF also suggests starker trade-offs between wages and employment when minimum wages rise over 45 per cent of average wages, a level that can be found among central and eastern European countries with the highest minimum wage (with effects increasing fivefold in some models).

Research also suggests that the disemployment effects are unequally distributed among firms. In Czechia, where the minimum wage is very low, disemployment effects were observed only in some non-tradeable sectors: accommodation/catering and mining/telecoms (Pícl *et al.* 2014, relying on aggregate data). The finding may be driven by a very low incidence of minimum wages in tradeable sectors such as manufacturing. In contrast, a study of the massive MW 2001 hike in Hungary found the service sector largely unaffected, with disemployment effects concentrated in exporting and manufacturing firms (Harasztosi and Lindner 2015, relying on a robust firm-level comparison). Kertesi and Köllő (2003) found small firms to be most affected, recording an employment fall of almost 4 per cent, with those in remote regions effected particularly strongly. Using comparative firm-level evidence, the IMF (2016) found the disemployment effects to be 50 per cent higher in tradeable sectors.¹⁴

14. The higher vulnerability of manufacturing firms and exporters can be explained by their limited ability to pass on prices to consumers without negative effects on demand (price elasticity), given the competition on export markets.

Productivity and other efficiency effects

Minimum wages are typically understood to improve economic efficiency through two potential channels. First, firms can react to higher wage bills by increasing output per hour worked. Second, minimum wages can correct market distortions. In the monopsony situation, in which (a few) dominant employers hold down employment and wages (for example, in ‘company towns’), minimum wages can bring up wage levels and hence lead to higher output growth and employment.

There is some international evidence linking minimum wages to productivity increases in individual cases (e.g. LPC 2016), but the experience from central and eastern Europe is mixed and inconclusive. The WDN company surveys from a number of central and eastern European countries show productivity improvements to be the major adjustment channel with regard to minimum wage hikes (LB 1995; Fadejeva and Krasnopjorovs 2015; Schnattinger *et al.* 2015), but this can be taken as indicative only as these are responses to a hypothetical question. There is very little direct evidence on productivity effects. The IMF’s recent modelling based on company-level data is inconclusive: minimum wage increases were found to have negative effects on revenues per employee, but positive effects on value added per employee. Some specifications showed stronger effects (for example, 10 per cent minimum wage increase leading to a 2 per cent productivity improvement), but other specifications did not show any effects (IMF 2016: 17). The study on the 2001 minimum wage hike in Hungary also found no improvement in efficiency. Instead, the higher wage bill was passed on to consumers, who faced higher prices (Harasztosi and Lindner 2015).

However, minimum wages can support efficiency and increases in public welfare also through other, less direct channels. Many of them are related to the equalising effect of the minimum wage. On the micro-level, there is research showing that unequal pay that is not transparently linked to productivity differences reduces work attendance and cooperation (Breza *et al.* 2016). If wage floors reduce such inequality, they can improve productivity, too. There are also a number of other mechanisms through which redistribution can stimulate growth, ranging from a simple demand stimulus to more efficient human-capital formation. Recent modelling by the IMF thus confirmed the negative effect of inequality on growth: a 1 percentage point increase in income in the lowest quintile leads to a 0.4 per cent increase in GDP, while the same increase in the highest quintile reduces GDP by 0.1 per cent (Dabla-Norris *et al.* 2015). Counteracting the inequality increases experienced in central and eastern Europe through an active minimum wage policy could thus increase general economic welfare.

Furthermore, a compressed wage structure can encourage productivity growth on the aggregate level, rather than on the company level that is studied typically. This has been demonstrated by the Scandinavian experience, when wage compression was used to move allocation of resources from less productive to more productive activities (Moene and Wallerstein, 2005). Wage compression made low productivity activities unprofitable and increased profits in high-productivity industries, inducing relocation of capital and labour towards highly productive activities and increasing aggregate efficiency (Agell and Lommerud 1993; Moene and Wallerstein 1997).

While minimum wages cannot compensate for a lack of centralised collective bargaining, they can compress wage structures by raising pay floors. Higher pay floors then may price out some less productive sectors. There is some – not entirely conclusive – evidence that such a mechanism may exist. The Hungarian study (Harasztosi and Lindner 2015), relying on a robust comparison of like-for-like companies, showed the negative employment effects to be limited to the tradeable sector – the non-tradeable simply passed higher costs on to consumers, which did not seem to be an option for the tradeable sector facing competition on export markets. Consistent with this finding, the IMF study of the large firm-level data show profits in the tradeable sector to be disproportionately affected by minimum wage hikes (IMF 2016: 23, 30–31).¹⁵ Moreover, on the macro-level, the IMF observes that higher minimum wages were associated with lower exports in labour-intensive sectors, such as manufacturing and services (IMF 2016: 23, 31). This has been interpreted by the IMF report to mean that minimum wages erode price competitiveness, a reason to worry given the large share of labour-intensive exports in countries such as Latvia, Lithuania and Romania.¹⁶ However, a move towards a higher-wage and higher-productivity model must entail relocation of resources from these sectors. Obviously, shrinking employment and capital allocation in these low-productivity sectors will not guarantee job creation in, and capital relocation to, higher-productivity sectors, but releasing resources from these sectors, or preventing further allocation to them, may be an important prerequisite or stimulus for such an upgrading.

15. Accordingly, a 10 per cent minimum wage increase lowers profits by 3 per cent in general and by 8 per cent in the tradeable sector.

16. It is observed that, in these countries, wage growth outstripped productivity growth (ULC); there was a real effective exchange rate appreciation; and some losses in market share were recorded.

Conclusion

Minimum wages are an effective tool for reducing inequality by raising the lowest incomes. As confirmed also by evidence from central and eastern Europe, they can be used to reduce inequality at very low to no costs to workers (in employment) and companies (in profits). Moreover, minimum wages can have some role in increasing aggregate productivity and promoting economic upgrading. Indeed, they should be used as part of a developmental strategy to overcome the low-wage model that is prevalent in the region. However, to be truly effective in raising aggregate wage levels, it would need to be accompanied by a stronger role for collective bargaining.

Many central and eastern European countries have raised their minimum wages to levels common in western Europe. However, there is no consensus about an optimal level of the minimum wage and there is little research that addresses that question. The European Social Charter finds that a minimum wage of about 50 per cent of the average (gross) wage guarantees workers' right to 'fair remuneration sufficient for a decent standard of living for themselves and their families'.¹⁷ A World Bank report by Rutkowski (2003) concluded that the minimum wage should not exceed 40 per cent of the average wage in developing countries. A joint ILO, OECD, IMF and World Bank report recommends a minimum wage level of only 25–35 per cent of average wages as optimal for striking a suitable balance (World Bank 2012). Finally, a recent IMF report on minimum wages in central and eastern Europe sets the threshold at about 45 per cent of average wages, with increases beyond that risking starker trade-offs between wages and employment (IMF 2016).¹⁸

Given the importance of country-specific contextual factors in conditioning the effects of minimum wages, the optimal level of the minimum wage needs to be estimated on a case-by-case basis. The effects of any minimum wage increase are going to depend on other policies pursued, most notably macroeconomic policy, which should provide adequate demand as well as adequate policies to support labour migration (both between sectors and geographically).

In any case, there seems to be a lot of room for minimum wage increases in Czechia, Estonia and Slovakia, as well as other countries with very low minimum wage levels. These countries have a lower share of labour-intensive

¹⁷ European Social Charter (revised), 1996, Part I, §4.

¹⁸ However, this rule of thumb is not based on conclusive cumulative evidence. In fact, country-specific studies do not provide evidence for strong disemployment in these countries.

tradeable sectors that may be vulnerable to employment losses. Bringing these countries up to par with other EU member states, a rapid increase of minimum wages to 45 per cent of average wages should be absorbed without significant employment costs. This would have immediate positive effects on income distribution.

There is a case for minimum wage policies also in the countries that have reached, or are near, the 45 per cent level common in western Europe. Many of these are countries have very low general wage levels and their fundamentals should allow for wage increases (cf. Myant 2016). Minimum wages have proved to be a more effective tool for raising general wage levels in countries with higher minimum wages and in sectors with high minimum wage incidence, but it should ideally be accompanied by other measures.

Moreover, the higher minimum wage cluster also includes a number of countries with large labour-intensive export sectors. These may indeed be at risk of employment losses from minimum wage hikes. However, these countries need to find a way of reallocating labour and capital to more productive activities. Minimum wages will not solve all the relevant problems – they should ideally represent one tool in a wider developmental strategy – but they can make a positive difference.

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